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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,029	09/28/2000	Ricardo I. Fuentes	11828/1	7682
26646	7590	11/22/2005	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			CULBERT, ROBERTS P	
			ART UNIT	PAPER NUMBER
			1763	
DATE MAILED: 11/22/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,029

Applicant(s)

FUENTES, RICARDO I.

Examiner

Roberts Culbert

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 28-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to the Unger et al. reference have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 9/19/05 with respect to the Britten reference have been fully considered. Applicant has argued that Britten would not operate in more than one lateral direction since the substrate would not be dried by the vapors of reservoir (18). However, the drying method of Britten is not essential to provide meniscus processing. For example, Bok (cited below) teaches that a solvent evaporates from the surface as the object is advanced past the meniscus. (Col. 5, Lines 1-8) Prior art references suggest that the lateral direction of movement (left or right) is not critical to the invention since all that is required is movement in a "generally horizontal direction".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 7-9, 11, 17-19, 23-26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,339,842 to Bok.

Regarding Claims 1, 23-25 and 31, Bok teaches a fluid meniscus process, comprising the steps of: holding at least a portion of a first surface of an object with a holding fixture, such that at least a portion of a second surface of the object is exposed, injecting at least one fluid in a tank such that a fluid meniscus is formed; contacting at least a portion of the second surface of the object with at least a portion of the fluid meniscus; moving the object and the tank in a lateral direction relative to each other, the

Art Unit: 1763

meniscus being in contact with the object during the lateral direction movement and removing the object after at least one contact with the fluid meniscus.

Bok does not explicitly teach moving the object and the tank consecutively in two or more opposite lateral directions relative to each other (i.e. back and forth) or repositioning and processing a second surface of the substrate. However, Bok teaches that the object may be a variety of substrates such as flat panel displays, lenses, wafers and circuit boards having various layers and surfaces suitable for processing. (Col. 1, Lines 12-20) Bok also teaches that the object and tank may be stationary or may move relative to each other in a horizontal direction. (Col. 4, Lines 60-67) Bok further teaches that the object (substrate) may be larger than the tank. (Col. 8, Lines 7-17)

It would have been obvious to one of ordinary skill in the art at the time of invention to repeat the process of the prior art by either repositioning or moving the substrate repeatedly across or back and forth as necessary to achieve the desired etching/cleaning results, or as a matter of selecting suitable horizontal direction movement, for example, to process an entire substrate surface that is larger than the tank.

Regarding Claim 2, the object is a substrate (substance acted upon).

Regarding Claim 5, the fluid is circulated, agitated, heated and replenished. (See Figure 1)

Regarding Claim 7, Bok teaches that the holding tank has at least one channel (12) to hold the fluid (14).

Regarding Claim 8, Bok teaches that the holding tank has at least one overflow channel (15).

Regarding Claim 9, the fluid is injected into the holding tank using at least one pump (20). (Col. 5, lines 9-11)

Regarding Claim 11, Bok teaches that the fluid meniscus (17) is formed above the edges of the holding tank.

Regarding Claim 17, Bok teaches that the object is moved by one of rotation, oscillation and linear translation.

Regarding Claims 18 and 19, Bok teaches that at least one gas selected from nitrogen and air is supplied to the object. (Col. 5, Lines 5-7)

Art Unit: 1763

Regarding Claims 26 and 27, Bok teaches that either the tank or object may be moved to contact the object and meniscus. (Col. 4, lines 60-65)

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,339,842 to Bok in view of U.S. Patent 5,171,393 to Moffat

Regarding Claim 3, Bok does not expressly teach a holding means that is "fluidic". However Bok discloses a "rotating chuck" for holding the object. (Col. 6, Lines 27-28) Typically rotating chucks use fluidic means such as vacuum to secure a substrate for processing. For example, Moffat teaches a rotating vacuum chuck (Col. 3, Lines 19-21) for wet processing a substrate. It would have been obvious to one of ordinary skill in the art at the time of invention to use a fluidic means such as a vacuum chuck in order to secure the substrate for wet processing as shown by Moffat.

Claims 4, 6, 10 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,339,842 to Bok in view of U.S. Patent 5,660,642 to Britten.

Regarding Claims 4, 10 and 12, Bok does not expressly teach that the fluid is an etching fluid or that an etching process is performed. Bok teaches more broadly "cleaning" and removal of particles from surface. However, Britten teaches that meniscus processes are used for cleaning, developing and etching processes. See Abstract and (Col. 2, Lines 40-45) of Britten. It would have been obvious to one of ordinary skill in the art at the time of invention to use either cleaning developing or etching fluid in order to process the substrate as taught by Britten.

Regarding Claims 6 and 13-16, Britten teaches the meniscus contact process may be used for both photoresist development and etching steps. (Col. 4, Lines 31-34) It would have been obvious to one of ordinary skill in the art at the time of invention to use a photoresist coating on the substrate for development to provide selective etching in the well-known manner.

Art Unit: 1763

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,339,842 to Bok in view of U.S. Patent 5,660,642 to Britten and in further view of U.S. Patent 5,279,703 to Habberger.

As applied above, Bok in view of Moffat and Britten discloses the method of invention substantially as claimed, but does not teach the use of electromagnetic radiation. Habberger teaches a process for etching a substrate in which electromagnetic radiation is used to heat a substrate and improve the etch rate (Col. 4, Lines 65-68). It would have been obvious to one of ordinary skill in the art at the time of invention to irradiate the substrate in the well-known manner in order to heat the substrate and improve the etch rate as indicated by Habberger (Col. 4, Lines 6-10). The location of the energy source is not afforded patentable weight because one of ordinary skill in the art would recognize that the energy source could be secured anywhere that permits the energy source to focus on the substrate as a matter of design choice.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert
Examiner
Art Unit 1763



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763